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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/045,901	01/14/2002	Adam Divelbiss	VRex-0035USAAON00	1384

26665 7590 01/12/2006

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EXAMINER	
CHANG, AUDREY Y	
ART UNIT	**PAPER NUMBER**
2872	

DATE MAILED: 01/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/045,901	DIVELBISS ET AL.	
	Examiner	Art Unit	
	Audrey Y. Chang	2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 November 2005*.

2a)☐ This action is **FINAL**. 2b)☐ This action is non-final.

3)☒ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *34-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☒ Claim(s) *34-40* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Remark

- This Office Action is in response to applicant's amendment filed on November 14, 2005, which has been entered into the file.
- Applicant's election of **species A (claims 34-40)** in the reply filed on November 14, 2005 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election **without traverse** (MPEP § 818.03(a)).
- Applicant has also amended claims 34, 38 and 40 and has canceled claims 41-48.
- Claims 34-40 remain pending in this application.

Conclusion

1. This application is in condition for allowance except for the following formal matters:

Claims 34-40 are objected to because of the following informalities:

(1). The phrase "*a digital micro-mirror device data formatter for receiving an input stereoscopic image and control signal*" recited in claim 34 is confusing and indefinite since **firstly**, it is not sure if this "input stereoscopic image and control signal" really means **a** *stereoscopic image* and **a** *control signal* (as two separated things), or a *single signal* including both the *image* and *control* signal (i.e. a single signal). It is however not clear what is considered to be the "input stereoscopic *image*"? The applicant must understand that there is no such thing as "**stereoscopic image**" that is to say an image which is always 2D cannot be "stereoscopic" by itself rather "**stereo-pair images**" that are 2D images of right eye perspective and left eye perspective can be generated so that **stereoscopic illusion** is created by the system. The term "**signal** including stereoscopic information (and control information)" can however be used.

Furthermore, how does this stereoscopic image **signal** relate to the "output signal" generated by the 3D data formatter? Without a specific connection between the two would make the scopes of the claims unclear. As judging from the specification it appears the following is intended:

3D data formatter for receiving an *input single* having stereoscopic image information with an input frame rate and generates an *output signal* comprising stereoscopic image information and control information having a *self synchronized output frame rate* independent of and decoupled from the input frame rate,

a digital micro-mirror device data formatter (DMD) for receiving the output signal having stereoscopic image information and control information from the 3D data formatter and for outputting a DMD output signal having stereoscopic image information and control information,

wherein the DMD output signal having stereoscopic image information and control information, including a color wheel control signal indicative of rotation rate and output digital micro-mirror device data indicative of micro-mirror switching rates, wherein said color wheel control signal and output digital micro-mirror device data are synchronized based on the output frame rate generated by the 3D data formatter,

(2). The phrase "*optional* 3D field signal" recited in claim 34 is confusing and indefinite since it does not have the proper antecedent basis.

(3). The phrase "*dual port memory controller that converts input stereoscopic image and control signal at the output frame from a full color image into an image stream having serial individual color images*" recited in claim 34 is confusing and indefinite since it is not clear what is this "full color image"? It is more likely that should be stated as follows:

"a dual port memory controller that *converts* the output signal having stereoscopic image information and control information from the 3D data formatter, *with a full color image format*, at

the output frame rate into an image stream having serial individual color images synchronized to the rotation of a color wheel based on the output frame rate".

(4). The phrase "the color wheel" recited in claim 34 is confusing and indefinite since it lacks proper antecedent basis from earlier part of the claim.

(5). The phrase "a micro-controller for setting the register values of the dual port memory controller based on the 3D format and sets the optional 3D field signal" recited in claim 34 is confusing and indefinite since it is not clear what is considered to be the "register value" and what is the function of the register value. It is also not clear what is this optional 3D field signal.

(6). The phrase "a digital micro-mirror device data converter for forming data" recited in claim 34 is confusing since it is not clear what is this data? Is this the "output signal having stereoscopic information and control information from the 3D data formatter" or not?

(7). The phrase "color signal data indicative of rotation rate" is confusing and it should be "*color wheel control signals indicative of rotation rate*" in order to be consistent.

(8). The phrase "the digital micro-mirror chip receiving the output digital micro-mirror device data" recited in claim 34 is confusing since it is not clear if the data should be "output digital micro-mirror device data indicative of micro-mirror switching rates"?

(9). There seems to lack logical and structural relationships or functions of the "3D encoder system" and the "projection optics" with respect to the rest of the elements in the system to make the scopes of the claim complete and clear. It appears the "3D encoder system" receives the light reflected from the digital micro-mirror device or chip and encodes it to form the stereoscopic encoded optical signal and the encoded signal is projected by the projection optics.

(10). The scopes of claim 39 are indefinite since it is dependent from a canceled claim (claim 1).

Appropriate correction is required.

Prosecution on the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

A shortened statutory period for reply to this action is set to expire **TWO MONTHS** from the mailing date of this letter.

Allowable Subject Matter

2. The following is a statement of reasons for the indication of allowable subject matter: of the prior art references considered, none has disclosed a digital micro-mirror device projection system for outputting a stereoscopic encoded optical signal wherein the projection system comprises a 3D data formatter for receiving an input signal comprising stereoscopic information having an input frame rate and providing an output signal having stereoscopic information and control information that has a self synchronized output frame rate independent from the input frame rate, a digital micro-mirror device data formatter comprising a dual port memory controller, a memory device, a digital micro-mirror device data converter and a micro-controller, a lamp for transmitting light to a condensed optics, a rotating color wheel that receives the light from the condensed optics and is coupled to the digital micro-mirror device data formatter, a digital micro-mirror chip for reflecting light from the rotating color wheel, a 3D encoder system for stereoscopically encoded the light reflected from the digital micro-mirror chip and a projection optics for projecting the stereoscopic encoded optical signal, as set forth in the claims.

US patent issued to Chiabrera et al (PN. 6,329,963) teaches a stereoscopic image display system using digital micro-mirror display device, but it fails to teach the details of the 3D data formatter and the digital micro-mirror device data formatter as explicitly stated in the claims.

US patent issued to Morgan (PN. 6,002,452) teaches a sequential color display system having a control system for both the digital micro-mirror device and a rotating color wheel however it does not teach to include a 3D data formatter.

US patent issued to Carmeli et al (PN. 6,414,708) teaches a video system for three-dimensional imaging wherein an internal/external synchronization unit is included to provide self-synchronization frame rate to the output signal however no digital micro-mirror device is included.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 571-272-2309. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Audrey Y. Chang, Ph.D.
Primary Examiner
Art Unit 2872

A. Chang, Ph.D.